

**Table E-4. Effluent Monitoring – Monitoring Location E-001-D**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow Rate <sup>(1)</sup>	MGD	Cont	Cont/D	(2)
BOD	mg/L	C-24	3/Week	(2)
	kg/day	C-24	3/Week	(2)
TSS	mg/L	C-24	3/Week	(2)
	kg/day	C-24	3/Week	(2)
BOD and TSS percent removal <sup>(3)</sup>	%	calculate	1/Month	
Oil and Grease <sup>(4)</sup>	mg/L	C-24	1/Quarter	(2)
	kg/day	C-24	1/Quarter	(2)
Total Chlorine Residual <sup>(5)</sup>	mg/L	Cont/2-hour	1/every 2 hours	(2)
Dissolved Oxygen	mg/L	G	1/Day	(2)
	% saturation	G	1/Day	(2)
Total Sulfides <sup>(6)</sup>	mg/L	G	1/Day	(2)
Enterococcus Bacteria <sup>(7)</sup>	MPN/100mL or CFU/100mL	G	5/Week	(2)
Temperature	°C	G	1/Day	(2)
Turbidity	NTU	G	1/Day	(2)
pH	s.u.	Cont	Cont/Day	(2)
Ammonia (total as N)	mg/L as N	C-24	1/Month	(2)
Unionized Ammonia	mg/L as N	C-24	1/Month	Calculated
Total Nitrogen	mg/L	C-24	1/Week	(2)
Total Phosphate	mg/L	C-24	1/Week	(2)
Copper	µg/L	C-24	1/Month	(2)
Dioxin-TEQ	µg/L	G	2/Year	(2)
Chlorodibromomethane	µg/L	G	2/Year	(2)
Dichlorobromomethane	µg/L	G	2/Year	(2)
Remaining Priority Pollutants <sup>(8)</sup>	µg/L	(8)	2/Year	(2)
Standard Observations <sup>(8)</sup>	---	---	1/Week	---

**Footnotes to Table E-4:**

Units:

MG	=	million gallons
MGD	=	million gallons per day
µg/L	=	micrograms per liter
mg/L	=	milligrams per liter
kg/d	=	kilograms per day

- (1) Flows shall be monitored continuously and the following shall be reported in monthly SMRs:
  - a. Daily average flow rate (MGD),
  - b. Daily total flow volume (MG),
  - c. Monthly average flow rate (MGD),
  - d. Monthly total flow volume (MG), and
  - e. Average daily maximum and average daily minimum flow rates (MGD) in a month.
- (2) Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136. For priority pollutants, the methods must meet the lowest MLs specified in SIP Attachment 4.
- (3) The percent removal for BOD and TSS shall be reported for each calendar month in accordance with Effluent Limitations IV.A.2. Samples for BOD and TSS shall be collected simultaneously with influent samples.
- (4) Each oil and grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample, within the accuracy of plus or minus 5%. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction or analysis.

- (5) During all times when chlorination is used for disinfection of the effluent, effluent chlorine concentrations shall be monitored continuously. Chlorine residual concentrations shall be monitored and reported for sampling points both before and after dechlorination. The Discharger shall report the maximum residual chlorine concentration observed following dechlorination on a daily basis. Total chlorine dosage (kg/day) shall be recorded on a daily basis. Alternatively, the Discharger may evaluate compliance with this requirement by recording discrete readings from the continuous monitoring every hour on the hour, or by collecting grab samples every hour, for a total of 24 readings or samples per day if the following conditions are met: (a) The Discharger shall retain continuous monitoring readings for at least three years; (b) The Discharger shall acknowledge in writing that the Regional Water Board reserves the right to use all other continuous monitoring data for discretionary enforcement; (c) The Discharger must provide in writing the brand name(s), model number(s), and serial number(s) of the equipment used to continuously monitor dechlorinated final effluent chlorine residual. If the identified equipment is replaced, the Discharger shall provide the Regional Water Board in writing, within 72 hours of the successful startup of the new equipment, the new equipment's brand name, model number, and serial number. The written notification identified in items (a) through (c) shall be in the form of a letter addressed to the Regional Water Board's Executive Officer with a certification statement as listed in the October 19, 2004, Regional Water Board letter re: *Chlorine Compliance Strategy for Dischargers Using Continuous Monitoring Devices*.
- (6) Total sulfides analysis shall be conducted only when dissolved oxygen concentrations as measured at EFF-001-D fall below 2.0 mg/L.
- (7) The Executive Officer may reduce the sampling frequency to three times per week after three years of monitoring, at the request of the Discharger and evidence of sustained compliance with the effluent limitation.
- (8) Sampling for all priority pollutants in the SIP is addressed in a Regional Water Board letter dated August 6, 2001, entitled *Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (not attached but available for review or download on the Regional Water Board's website at <http://www.waterboards.ca.gov/sanfranciscobay/>). For these pollutants, the sampling frequencies shall be the higher ones under this table or under the pretreatment program sampling required in Section X.A of this MRP. Pretreatment program monitoring can be used to satisfy relevant parts of these sampling requirements.
- (9) Standard observations, as specified in the SMP, Part A.

B. The Discharger shall monitor treated effluent from the Plant at E-001 and E-005, as follows. Effluent monitoring requirements for E-005 shall become effective upon Executive Officer approval of the discharge at Discharge Point 005.

**Table E-5. Effluent Monitoring – Monitoring Locations E-001 and E-005**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow Rate <sup>(1)</sup>	MGD	Cont	Cont/Day	---
pH <sup>(3)</sup>	s.u.	Cont	Cont/Day	(2)
Total Chlorine Residual	mg/L	Cont/2-hour	1/every 2 hours	(2)
Acute Toxicity <sup>(4), (5)</sup>	% survival	C-24	1/Month	(2)
Chronic Toxicity <sup>(5), (6)</sup>	TUc	C-24	1/Quarter	(2)
Temperature	°C	Cont	Cont/Day	(2)
Dissolved Oxygen	mg/L	G	1/Day	(2)
	% Saturation	G	1/Day	(2)
Cyanide <sup>(5), (7)</sup>	µg/L	G	1/Month	(2)
Dissolved Sulfides <sup>(8)</sup>	mg/L	G	1/Day	(2)

**Footnotes to Table E-5:**

Units:

MG	=	million gallons
MGD	=	million gallons per day
s.u.	=	standard units
TUc	=	Chronic Toxicity Units
°C	=	degrees Celsius
mg/L	=	milligrams per liter
kg/d	=	kilograms per day

- (1) Flows shall be monitored continuously and the following shall be reported in monthly SMRs:
  - a. Daily average flow rate (MGD),
  - b. Daily total flow volume (MG),
  - c. Monthly average flow rate (MGD),
  - d. Monthly total flow volume (MG), and

- e. Average daily maximum and average daily minimum flow rates (MGD) in a month.
- (2) Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136. For priority pollutants, the methods must meet the lowest MLs specified in SIP Attachment 4.
- (3) If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in monthly Self-Monitoring Reports (SMRs)<sup>1</sup>.
- (4) Acute bioassay tests shall be performed in accordance with Section V.A of this MRP.
- (5) Monitoring for acute toxicity, chronic toxicity, and cyanide shall occur at the frequencies indicated in Table E-5. The Discharger shall monitor at E-001 when there is discharge occurring at both E-001 and E-005. The Discharger shall monitor at E-005 when there is only discharge at E-005 and not at E-001.
- (6) Critical Life Stage Toxicity Tests shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Section V.B of this MRP.
- (7) The Discharger may, at its option, analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Method Part 4500-CN-I, USEPA Method OI 1677, or equivalent alternatives in the latest edition. Alternative methods of analysis must be approved by the Executive Officer.
- (8) Total sulfide analysis shall be conducted when dissolved oxygen concentrations measured at E-001 or E-005 fall below 2.0 mg/L.

C. The Discharger shall monitor treated effluent from the Plant at E-002 and E-003 as follows.

**Table E-6. Effluent Monitoring Requirements – E-002 and E-003**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow Rate <sup>(1)</sup>	MGD	Seasonal	(1)	—

**Footnotes to Table E-6:**

Units:

MG = million gallons

MGD = million gallons per day

(1) Flows shall be reported as monthly totals (in MG) in the monthly SMRs.

## V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor acute and chronic toxicity at the compliance location and frequencies specified in Table E-4, as follows.

### A. Whole Effluent Acute Toxicity

1. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays.
2. Test organisms shall be fathead minnow or rainbow trout unless the Executive Officer specifies otherwise in writing.
3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 136, currently in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5<sup>th</sup> Edition.
4. If the Discharger can demonstrate that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. The Discharger must obtain written approval from the Executive Officer to authorize such an adjustment.

5. Effluent used for fish bioassays shall be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be recorded and maintained with all other analytical documents.

If a violation of acute toxicity requirements occurs or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

## **B. Whole Effluent Chronic Toxicity**

### **1. Chronic Toxicity Monitoring Requirements**

- a. *Sampling.* The Discharger shall collect 24-hour composite samples of the effluent at the compliance point specified in Table E-5 for critical life stage toxicity tests. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.
- b. *Test Species.* The test species shall be *Mysidopsis bahia*. The Executive Officer may change the test species if data suggest that another test species is more sensitive to the discharge.
- c. *Methodology.* Sample collection, handling, and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in **Appendix E-1**. These are *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, currently third edition (EPA-821-R-02-014), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, currently fourth edition (EPA-821-R-02-013), with any exceptions granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
- d. *Dilution Series.* The Discharger shall conduct tests at 100%, 50%, 25%, 12.5%, and 6.25%. The "%" represents percent effluent as discharged. The Discharger may use a buffer only after obtaining written approval from the Executive Officer.

### **2. Chronic Toxicity Reporting Requirements**

- a. *Routine Reporting.* Toxicity test results for the current reporting period shall include, at a minimum, for each test:
  - (1) Sample dates
  - (2) Test initiation date
  - (3) Test species
  - (4) End point values for each dilution (e.g., number of young, growth rate, percent survival)

- (5) No Observed Effect Concentration (NOEC) values in terms of "percent effluent"
  - (6) Inhibition Concentration (IC) values at IC<sub>15</sub>, IC<sub>25</sub>, IC<sub>40</sub>, and IC<sub>50</sub> (or Effective Concentration (EC) values at EC<sub>15</sub>, EC<sub>25</sub> ... etc.) in terms of "percent effluent"
  - (7) Chronic Toxicity Units (TUC) values (100/NOEC, 100/IC<sub>25</sub>, or 100/EC<sub>25</sub>)
  - (8) Mean percent mortality ( $\pm$ s.d.) after 96 hours in 100% effluent (if applicable)
  - (9) NOEC and Lowest Observed Effect Concentration (LOEC) values for reference toxicant tests
  - (10) IC<sub>50</sub> or EC<sub>50</sub> values for reference toxicant tests
  - (11) Available water quality measurements for each test (pH, dissolved oxygen [DO], temperature, conductivity, hardness, salinity, ammonia)
- b. *Compliance Summary.* The results of the chronic toxicity testing shall be provided in the Self-Monitoring Report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include items listed above under 2.a, specifically item numbers (1), (3), (5), (6) (IC<sub>25</sub> or EC<sub>25</sub>), (7), and (8).

### 3. Chronic Toxicity Reduction Evaluation (TRE)

- a. To be ready to respond to toxicity events, the Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.
- b. Within 30 days of exceeding the trigger for accelerated monitoring, the Discharger shall submit to the Regional Water Board a specific TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.
- c. Within 30 days of the date of completion of accelerated monitoring tests observed to exceed either trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.
- d. The TRE shall be specific to the discharge and be prepared in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:
  - (1) Tier 1 consists of basic data collection (routine and accelerated monitoring).
  - (2) Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.
  - (3) Tier 3 consists of a toxicity identification evaluation (TIE).

- (4) Tier 4 consists of evaluation of options for additional effluent treatment processes.
- (5) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
- (6) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
- e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of Section IV.A.4 of this Order).
- f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.
- g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.
- h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.
- i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

#### **VI. LAND DISCHARGE MONITORING REQUIREMENTS**

Not Applicable.

#### **VII. RECLAMATION MONITORING REQUIREMENTS**

Not Applicable.

#### **VIII. RECEIVING WATER MONITORING REQUIREMENTS**

- A. The Discharger shall continue to participate in the Regional Monitoring Program for Trace Substances (RMP), which involves collection of data on pollutants and toxicity in water, sediment, and biota of the Estuary. The Discharger's participation and support of the RMP is used in consideration of the level of receiving water monitoring required by this Order.
- B. The Discharger also shall conduct receiving water monitoring as described in Tables E-7 and E-8, below.

**Table E-7. Receiving Water Monitoring – Monitoring Locations RSW-001 to RSW-004, RSW-006 to RSW-008**

Parameter	Units	Sample Type	Minimum Sampling Frequency <sup>(1)</sup>	Required Analytical Test Method
pH <sup>(3) (4)</sup>	s.u.	G	1/Quarter	<sup>(2)</sup>
Temperature <sup>(3) (4)</sup>	°C	G	1/Quarter	<sup>(2)</sup>
Salinity <sup>(3) (4)</sup>	ppt	G	1/Quarter	<sup>(2)</sup>
Total Ammonia <sup>(3) (4)</sup>	mg/L as N	G	1/Quarter	<sup>(2)</sup>
Unionized Ammonia	mg/L as N	Calculation	1/Quarter	<sup>(2)</sup>
Dissolved Oxygen <sup>(3) (4)</sup>	mg/L	G	1/Quarter	<sup>(2)</sup>
	% Saturation	G	1/Quarter	<sup>(2)</sup>
Hardness <sup>(3) (4)</sup>	mg/L as CaCO <sub>3</sub>	G	1/Quarter	<sup>(2)</sup>
Total Nitrogen	mg/L as N	G	1/Quarter	<sup>(2)</sup>
Total Phosphate	mg/L as P	G	1/Quarter	<sup>(2)</sup>
Standard Observations	---	Observation	1/Quarter	---

**Footnotes to Table E-7:**

Units:

s.u. = standard units  
°C = degrees Celsius  
mg/L = milligrams per liter  
µg/L = micrograms per liter

- (1) Receiving waters stations RSW-001 to RSW-004 and RSW-006 to RSW-008 shall be sampled on the same day and the sampling frequency will be 1/Quarter.
- (2) Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136.
- (3) Monitoring shall be conducted in the afternoon, when pH and ammonia toxicity are at a maximum.

**Table E-8. Receiving Water Monitoring – Monitoring Locations RSW-009 and RSW-010**

Parameter	Units	Sample Type	Minimum Sampling Frequency <sup>(1)</sup>	Required Analytical Test Method
pH <sup>(3) (4)</sup>	s.u.	G	1/Month	<sup>(2)</sup>
Temperature <sup>(3) (4)</sup>	°C	G	1/Month	<sup>(2)</sup>
Salinity <sup>(3) (4)</sup>	ppt	G	1/Month	<sup>(2)</sup>
Total Ammonia <sup>(3) (4)</sup>	mg/L as N	G	1/Month	<sup>(2)</sup>
Unionized Ammonia	mg/L as N	Calculation	1/Month	<sup>(2)</sup>
Dissolved Oxygen <sup>(3) (4)</sup>	mg/L	G	1/Month	<sup>(2)</sup>
	% Saturation	G	1/Month	<sup>(2)</sup>
Hardness <sup>(3) (4)</sup>	mg/L as CaCO <sub>3</sub>	G	1/Month	<sup>(2)</sup>
Total Nitrogen	mg/L as N	G	1/Quarter	<sup>(2)</sup>
Total Phosphate	mg/L as P	G	1/Quarter	<sup>(2)</sup>
Metals <sup>(5)</sup>	µg/L	G	1/Quarter	<sup>(2)</sup>
Standard Observations	---	Observation	1/Quarter	---

**Footnotes to Table E-8:**

Units:

s.u. = standard units  
°C = degrees Celsius  
mg/L = milligrams per liter

µg/L = micrograms per liter

- (1) Receiving water stations RSW-009 and RSW-010 shall be sampled on the same day, when discharge is occurring at Discharge Point E-005. For RSW-009 and RSW-010, for all constituents with the sampling frequency of 1/Month, this frequency shall continue for one calendar year and then drop to 1/Quarter.
- (2) Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136. For priority pollutants, the methods must meet the lowest MLs specified in SIP Attachment 4.
- (3) Monitoring shall be conducted in the afternoon, when pH and ammonia toxicity are at a maximum.
- (4) Metals are the priority pollutant metals: antimony, arsenic, beryllium, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.

## IX. OTHER MONITORING REQUIREMENTS

### A. Pretreatment Requirements

The Discharger shall comply with the pretreatment requirements specified in Table E-9 for influent (at monitoring location I-001), effluent (at monitoring location E-001-D), and biosolids monitoring.

**Table E-9. Pretreatment and Biosolids Monitoring Requirements**

Constituents	Influent	Effluent <sup>(1)</sup>	Biosolids <sup>(2)</sup>	Sample Type	
				INF-001 & EFF-001	Biosolids
VOC <sup>(3)</sup>	2/year	2/year	2/year	multiple grabs <sup>(7a)</sup>	grabs <sup>(7d)</sup>
BNA <sup>(4)</sup>	2/year	2/year	2/year	multiple grabs <sup>(7a)</sup>	grabs <sup>(7d)</sup>
Metals <sup>(5)</sup>	1/month	1/month	2/year	24-hour composite <sup>(7b)</sup>	grabs <sup>(7d)</sup>
Hexavalent Chromium <sup>(6)</sup>	1/month	1/month	2/year	multiple grabs <sup>(7a)</sup>	grabs <sup>(7d)</sup>
Mercury	1/month	1/month	2/year	24-hour composite <sup>(7b,7c)</sup>	grabs <sup>(7d)</sup>
Cyanide <sup>(5)</sup>	1/month	1/month	2/year	multiple grabs <sup>(7a)</sup>	grabs <sup>(7d)</sup>
Organophosphorus <sup>(8)</sup>	2/year	2/year	2/year	---	---
Pesticides					
Carbamate and Urea Pesticides <sup>(9)</sup>	2/year	2/year	2/year	---	---

**Footnotes for Table E-9:**

- (1) The Discharger may elect to use the effluent monitoring conducted in accordance with Table E-4 to satisfy these pretreatment monitoring requirements.
- (2) If the Discharger operates its solar drying operations only during the dry season, it may elect to report biosolids monitoring information once per year (during the dry season) at time when it does not stockpile biosolids. If the Discharger stockpiles biosolids, it shall report biosolids monitoring results for the stockpile once during the wet season.
- (3) VOC: volatile organic compounds
- (4) BNA: base/neutrals and acids extractable organic compounds
- (5) The metals are arsenic, cadmium, copper, lead, nickel, silver, zinc, and selenium.
- (6) The Discharger may elect to report total chromium instead of hexavalent chromium. Samples collected for total chromium measurements shall be 24-hour composites.
- (7) Sample types:
  - a. Multiple grabs samples for VOC, BNA, hexavalent chromium, and cyanide, must consist of a minimum of four discrete grab samples, collected at equal intervals spaced over the course of a 24-hour period, with each grab sample analyzed separately and the results mathematically flow-weighted, or with all grab samples combined (volumetrically flow-weighted) prior to analysis.
  - b. If an automatic compositor is used, the Discharger shall obtain 24-hour composite samples through flow-proportioned composite sampling. Alternatively, 24-hour composite samples may consist of discrete grab samples that are combined (volumetrically flow-weighted) prior to analysis or mathematically flow-weighted.
  - c. The Discharger may use automatic compositors for mercury if either (1) the compositing equipment (hoses and containers) comply with ultraclean specifications, or (2) appropriate equipment blank samples demonstrate that the compositing equipment has not contaminated the sample.



- d. The biosolids sample shall be a composite of the biosolids to be disposed. Biosolids collection and monitoring shall comply with the requirements specified in Attachment H, Appendix H-3. The Discharger shall also comply with the biosolids monitoring requirements of 40 CFR 503.
- (8) USEPA Method 614.
- (9) USEPA Method 632.

## **B. Biosolids Monitoring**

The Discharger shall adhere to sludge monitoring requirements required by 40 CFR 503.

## **X. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM (ATTACHMENT G)**

Modify Section F.4 as follows:

### **Self-Monitoring Reports**

[Add the following to the beginning of the first paragraph:]

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices.

[And add at the end of Section F.4 the following:]

- g. If the Discharger wishes to invalidate any measurement, the letter of transmittal shall include identification of the measurement suspected to be invalid and notification of intent to submit, within 60 days, a formal request to invalidate the measurement. This formal request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion) to prevent recurrence of the sampling or measurement problem.
- h. **Reporting Data in Electronic Format**

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

  - 1) **Reporting Method:** The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS) and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Order has been modified to include.
  - 2) **Monthly Reporting Requirements:** For each reporting month, an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4 of

SMP, Part A. However, until USEPA approves the electronic signature or other signature technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.

- 3) **Annual Reporting Requirements:** Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report electronically, but a hard copy of the annual report shall be submitted according to Section F.5 of SMP, Part A.

## **XI. REPORTING REQUIREMENTS**

### **A. General Monitoring and Reporting Requirements**

The Discharger shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping.

### **B. Self Monitoring Reports**

1. At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event that there will be service interruption for electronic submittal.
2. The Discharger shall submit monthly and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order for each calendar month. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMRs shall be due on the 30th day following the end of each calendar month, covering samples collected during that calendar month; Annual Reports shall be due on February 1 following each calendar year.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table E-10. Monitoring Periods and Reporting Schedule**

<b>Sampling Frequency</b>	<b>Monitoring Period Begins On...</b>	<b>Monitoring Period</b>
Continuous	Day after permit effective date	All
Hourly	Day after permit effective date	Hourly
Daily	Day after permit effective date	Midnight through 11:59 PM or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 <sup>st</sup> day of calendar month through last day of calendar month
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31
Annually	January 1 following (or on) permit effective date	January 1 through December 31
Per Discharge Event	Anytime during the discharge event or as soon as possible after aware of the event	At a time when sampling can characterize the discharge event

4. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL) as determined by the procedure in 40 CFR 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy ( $\pm$  a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.
  - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
5. The Discharger shall submit SMRs in accordance with the following requirements:
    - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Plant is operating in compliance with interim

and final effluent limitations in this Order. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data are required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

- b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of this Order, discuss corrective actions taken or planned, and specify the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
- c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Executive Officer  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612  
ATTN: NPDES Wastewater Division

### C. Discharge Monitoring Reports

1. As described in Section XI.B.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to one of the addresses listed below:

Standard Mail	FedEx/UPS/Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 <sup>th</sup> Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

#### **D. Other Reports**

The Discharger shall report the results of any special studies, monitoring, and reporting required by Section VI.C.2 (Special Studies, Technical Reports, and Additional Monitoring Requirements) of this Order with the first monthly SMR following the respective due date. The Discharger shall include a report of progress towards meeting compliance schedules established by section VI.C.2 of this Order in the annual SMR.

**APPENDIX E-1  
CHRONIC TOXICITY  
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS**

**I. Definition of Terms**

- A. No observed effect level (NOEL) for compliance determination is equal to  $IC_{25}$  or  $EC_{25}$ . If the  $IC_{25}$  or  $EC_{25}$  cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.
- B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber.  $EC_{25}$  is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.
- C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an  $IC_{25}$  is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.
- D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

**II. Chronic Toxicity Screening Phase Requirements**

- A. The Discharger shall perform screening phase monitoring:
  - 1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or
  - 2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
  - 1. Use of test species specified in **Appendix E-2**, attached, and use of the protocols referenced in those tables.
  - 2. Two stages:

- a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on **Appendix E-2** (attached).
  - b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results.
  3. Appropriate controls.
  4. Concurrent reference toxicant tests.
  5. Dilution series of 100%, 50%, 25%, 12.5%, and 6.25%, where “%” is percent effluent as discharged.
- C. The Discharger shall submit a screening phase proposal acceptable to the Executive Officer. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharge shall commence with screening phase monitoring.

## APPENDIX E-2 SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

### Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	( <i>Skeletonema costatum</i> ) ( <i>Thalassiosira pseudonana</i> )	Growth rate	4 days	1
Red alga	( <i>Champia parvula</i> )	Number of cystocarps	7-9 days	3
Giant kelp	( <i>Macrocystis pyrifera</i> )	Percent germination; germ tube length	48 hours	2
Oyster Mussel	( <i>Crassostrea gigas</i> ) ( <i>Mytilus edulis</i> )	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	( <i>Strongylocentrotus purpuratus</i> , <i>S. franciscanus</i> ) ( <i>Dendraster excentricus</i> )	Percent fertilization	1 hour	2
Shrimp	( <i>Mysidopsis bahia</i> )	Percent survival; growth	7 days	3
Shrimp	( <i>Holmesimysis costata</i> )	Percent survival; growth	7 days	2
Topsmelt	( <i>Atherinops affinis</i> )	Percent survival; growth	7 days	2
Silversides	( <i>Menidia beryllina</i> )	Larval growth rate; percent survival	7 days	3

#### Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.
3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

### Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	( <i>Pimephales promelas</i> )	Survival; growth rate	7 days	4
Water flea	( <i>Ceriodaphnia dubia</i> )	Survival; number of young	7 days	4
Alga	( <i>Selenastrum capricornutum</i> )	Cell division rate	4 days	4

#### Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.



### Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay <sup>(2)</sup>	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater <sup>(1)</sup> Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

**Footnotes:**

- (1) The freshwater species may be substituted with marine species if:
  - (a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or
  - (b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.
- (2) (a) Marine refers to receiving water salinities greater than 10 ppt at least 95 percent of the time during a normal water year.  
 (b) Freshwater refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.  
 (c) Estuarine refers to receiving water salinities that fall between those of marine and freshwater, as described above.

## ATTACHMENT F - FACT SHEET

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## ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

### I. PERMIT INFORMATION

The following table summarizes administrative information related to the Fairfield-Suisun Wastewater Treatment Plant (Plant) and its collection system.

**Table F-1. Facility Information**

<b>WDID</b>	2 482005001
<b>Discharger</b>	Fairfield-Suisun Sewer District
<b>Name of Facility</b>	Fairfield-Suisun Wastewater Treatment Plant and its collection system
<b>Facility Address</b>	1010 Chadbourne Road
	Fairfield CA 94534
	Solano County
<b>Facility Contact, Title, Phone</b>	Kathy Hopkins, General Manager, (707)429-8930
<b>Authorized Person to Sign and Submit Reports</b>	Same as above
<b>Mailing Address</b>	Same as Facility Address
<b>Billing Address</b>	Same as Facility Address
<b>Type of Facility</b>	Publicly Owned Treatment Works (POTW)
<b>Major or Minor Facility</b>	Major
<b>Threat to Water Quality</b>	1
<b>Complexity</b>	A
<b>Pretreatment Program</b>	Yes
<b>Reclamation Requirements</b>	Yes, under Order No. 91-147
<b>Mercury Discharge Requirements</b>	Yes, under Order No. R2-2007-0077
<b>Facility Permitted Flow</b>	17.5 million gallons per day (MGD) average dry weather flow
<b>Facility Design Flow</b>	17.5 MGD (average dry weather treatment capacity)
	34.8 MGD (peak wet weather treatment capacity)
<b>Watershed</b>	Suisun Basin
<b>Receiving Water</b>	Boynton Slough, LedgeWood Creek, Duck Ponds 1 and 2
<b>Receiving Water Type</b>	Estuarine
<b>Service Areas</b>	Cities of Fairfield and Suisun City, and unincorporated areas in Solano County
<b>Service Area Population</b>	132,500 (2008 estimate)

- A. The Fairfield-Suisun Sewer District owns and operates the Plant and its associated collection system. The Plant provides advanced secondary treatment of the wastewater collected from its

service areas and discharges primarily to Boynton Slough, with intermittent discharges to two duck ponds, and planned intermittent discharges to Ledgeewood Creek. The ownership and operation of the Plant and the collection system, including satellite collection systems, are further described in Section II of this Fact Sheet under Facility Description.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B. The discharge of treated wastewater from the Plant to Boynton Slough and the duck ponds, all waters of the United States, is currently regulated by Order No. R2-2003-0072 (NPDES Permit No. CA0038024), which was adopted on August 20, 2003, became effective on November 1, 2003, and expired on September 30, 2008. Order No. R2-2003-0072 was amended by Order No. R2-2006-0045 to establish requirements for discharges to Ledgeewood Creek.
- C. The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and NPDES permit on March 31, 2008. The application was deemed complete, and the previous Order has been administratively extended.

## II. FACILITY DESCRIPTION

### A. Description of Wastewater Treatment

The Discharger owns and operates the Plant and its collection system, which provides advanced secondary treatment of wastewater from domestic, commercial, and industrial sources from the City of Fairfield, Suisun City, and Travis Air Force Base. The service population is approximately 132,500 (2008 estimate). The Plant has an average dry weather design treatment capacity of 17.5 MGD. The average discharge rate is 16.7 MGD, based on flow data from 2006 to 2008, and the highest maximum daily effluent flow rate from 2006 to 2008 was 37.32 MGD.

Flow enters the Plant headworks from four pump stations. Each pump station force main has a magnetic flow meter measuring flow. The pump stations' combined flow is measured through a Parshall flume downstream of influent screening. Plant recycle (utility water) is included in the inlet pump station flow. As a result, influent flow always contains Plant recycle. The Plant recycle stream is separately sampled and metered prior to mixing with the influent flow. Then the combined flow (recycle and influent) is sampled and metered. To determine influent flow, Plant influent analyses are mathematically adjusted to arrive at influent loading exclusive of Plant recycle.

Wastewater treatment processes at the Plant include screening and grit removal, primary clarification, optional fixed film roughing filters and intermediate clarification, biological activated sludge, secondary clarification, temporary storage of activated sludge effluent in flow balancing reservoirs (total volume 12.7 million gallon (MG)), advanced secondary dual-media filtration, disinfection (chlorination), and dechlorination (sulfur dioxide). Biosolids are concentrated using dissolved air flotation thickeners, anaerobically digested, and either mechanically dewatered or dewatered by open-air solar drying beds or lagoons. Biosolids are placed in the Potrero Hills Landfill as alternative daily cover or beneficially reused through agricultural land application.

Wet weather facilities are available that include equalization storage (111 MG) with comminution and prechlorination. Flows from the wet weather facilities are returned to the Plant headworks once influent flows subside. The Plant provides containment and advanced secondary treatment of wastewater flows up to the 20-year storm event.

Chlorinated effluent flow is conveyed from the chlorine contact basin to either Discharge Point E-001, or to one of three earthen final storage reservoirs (total volume of 20.4 MG), where it is dechlorinated prior to discharge to Boynton Slough. During periods of low flow and/or low irrigation demand, stored water from the final effluent reservoirs is discharged at E-001 and is, therefore, a blend of treated wastewater from the chlorine contact chamber effluent and treated wastewater from the storage reservoirs. The outfall pipeline before E-001 can also be opened to allow the discharge of dechlorinated effluent to two privately owned and managed duck ponds in the Suisun Marsh (Discharge Points 002 and 003).

Approximately 10 percent of the Plant's treated effluent is discharged via a utility pump station that pumps chlorinated effluent from the storage reservoirs into irrigation conveyance and distribution facilities owned and operated by the Solano Irrigation District. Effluent may also be diverted from the effluent pipe to Discharge Point 001 to the irrigation system. Regional Water Board Order No. 91-147 requires reclamation for this discharge (agricultural and landscape irrigation, and industrial cooling).

Upon Executive Officer approval pursuant to section VI.C.2.h. of this Order, wet weather treated and dechlorinated effluent flows that exceed the capacity of the outfall at Discharge Point 001 (approximately 35 MGD) may be pumped from the utility pump station to Ledgewood Creek (Discharge Point 005). Discharge Point 005 will also provide an alternate discharge point for periods of shutdown at Discharge Point 001 and seismic redundancy for the Plant.

The Plant expansion is expected to be complete and operational by September 2009. However, additional Plant capacity is not authorized by this Order until the Discharger submits the appropriate documentation, as required by section VI.C.2.h. of the Order, and upon Executive Officer approval.

The Discharger's collection system is a separate sanitary sewer and includes 70 miles of sewer line (12 inches in diameter or greater) and 12 pump stations. Sewer lines less than 12 inches in diameter are owned and maintained by jurisdictions separate from the Discharger, including the City of Fairfield, Suisun City, and Travis Air Force Base.

Storm water originating on the Plant's grounds is directed offsite and regulated under the Statewide Industrial Storm Water Permit (NPDES General Permit No. CAS000001). The Discharger obtained coverage under this general permit effective on October 23, 1992 (Facility ID 2 48S001983).

Attachment B provides a map of the area around the Plant. Attachment C provides a flow schematic of the Plant.

## **B. Discharge Points and Receiving Waters**

The receiving waters and the locations of the Plant discharge points are shown in Table F-2 below. Discharge Point 001 is the primary continuous discharge location, and Discharge Points 002 and 003 are intermittent discharge points. Discharge Point 004 is the discharge to the recycled water system. Discharge Point 005 is expected to be completed and operational during the term of this

permit and will also be an intermittent discharge. Compliance monitoring for this Discharger for most parameters will take place at Monitoring Location E-001-D, as described in the attached MRP. Compliance monitoring stations E-001 and E-005, as described in the attached MRP, are located at the respective outfalls prior to contact with the receiving water.

**Table F-2. Outfall Locations**

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Advanced Secondary Treated Municipal Wastewater	38° 12' 33" N	122° 03' 24" W	Boynton Slough
002	Advanced Secondary Treated Municipal Wastewater	38° 12' 52" N	122° 03' 56" W	Duck Pond 1
003	Advanced Secondary Treated Municipal Wastewater	38° 12' 35" N	122° 03' 29" W	Duck Pond 2
005	Advanced Secondary Treated Municipal Wastewater	38° 14' 00" N	122° 03' 32" W	Ledgewood Creek

### C. Summary of Existing Requirements and Self-Monitoring Report Data

Effluent limitations contained in the previous Order (Order No. R2-2003-0072), as amended by Order No. R2-2006-0045, and representative monitoring data from the term of the previous permit are as follows:

**Table F-3. Previous Effluent Limitations and Monitoring Data for Conventional and Non-Conventional Pollutants**

Parameter	(units)	Effluent Limitations			Monitoring Data (From 11/03 to 08/08)		
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Weekly Average	Highest Daily Discharge
BOD <sub>5</sub>	mg/L	10	15	20	2.59(J)	5.5	8
TSS	mg/L	10	15	20	1.46	12.3	19
pH	s.u.	Within 6.5 – 8.5			Minimum – 4.6 Maximum – 9.2		
Settleable Solids	mL/L-hr	0.1	---	0.2	0.1	---	0.1
Oil and Grease	mg/L	---	---	10	---	---	5
Ammonia	mg/L	2.0	3.0	4.0	0.55	1.57	2.1
Turbidity	NTU	---	---	10	---	---	11 <sup>(1)</sup>
Total Chlorine Residual	mg/L	---	---	0.0 <sup>(2)</sup>	---	---	3.7 <sup>(2)</sup>
Acute	%	<sup>(3)</sup>			Minimum 11-sample 90 percentile: 95%		

Toxicity	Survival		Minimum 11-sample median: 100%
Total Coliform	MPN/ 100 mL	(4)	Maximum 7-day median: 16 Maximum Single Sample: 540

**Footnotes to Table F-3:**

Units:

mg/L = milligrams per liter  
mL/L-hr = milliliters per-liter-per hour  
MPN/100 mL = Most Probable Number per 100 milliliters  
NTU = Nephelometric turbidity units  
% survival = percent survival

- (1) Monitoring results reported as daily average.
- (2) Effluent limitation and monitoring results reported as an instantaneous maximum effluent limitation.
- (3) An 11-sample median value of not less than 90 percent survival and an 11-sample 90th percentile value of not less than 70 percent survival.
- (4) The moving median value for the MPN value of total coliform bacteria in any consecutive samples was not to exceed 2.2 MPN/100mL, and no single sample was to exceed 23 MPN/100 mL.

**Table F-4. Previous Effluent Limitations and Monitoring Data for Toxic Pollutants**

Parameter	Units	Final Limits		Interim Limits		Monitoring Data (From 11/03 to 08/08)
		Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Highest Daily Concentration
Cadmium	µg/L	4.0	1.3	---	---	0.2
Chromium VI	µg/L	34	20	---	---	2.6
Copper	µg/L	---	---	12.3	---	9.2
Mercury	µg/L	---	---	---	0.023	0.012
Nickel	µg/L	7.1	---	---	---	8.2
Cyanide	µg/L	---	---	32	---	10
Dichlorobromomethane	µg/L	---	---	75	---	64
Bis(2-ethylhexyl)phthalate	µg/L	---	---	---	13	9 <sup>(1)</sup>
4,4'-DDE	µg/L	---	---	0.05	---	(0.003) <sup>(2)</sup>
Dieldrin	µg/L	---	---	0.01	---	(0.002) <sup>(2)</sup>

**Footnotes to Table F-4:**

Units: µg/L = micrograms per liter

- (1) The value was the highest concentration observed during the permit term but due to the Bis(2-ethylhexyl)phthalate Laboratory Analysis Study, the values prior to the Study were not used for the Reasonable Potential analysis.
- (2) Analyte not detected in effluent. Number in parenthesis is the method detection limit (MDL) as reported by the analytical laboratory.

## D. Compliance Summary

1. **Compliance with Numeric Effluent Limits.** Exceedances of numeric effluent limits were observed during the permit term for nickel, chlorine residual, pH, total coliform, and turbidity. The exceedances are listed below:

**Table F-5. Numeric Effluent Exceedances**

Date of Violation	Exceeded Parameter	Units	Effluent Limitation	Reported Concentration
November 12, 2003	Nickel Daily Maximum	µg/L	7.1	8.2
January 23, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.69
January 27, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.67



Date of Violation	Exceeded Parameter	Units	Effluent Limitation	Reported Concentration
January 30, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	1.66
February 23, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.69
February 27, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.67
April 8, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.41
April 28, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.25
June 3, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.94
October 12, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.92
October 16, 2004	Chlorine Residual Instantaneous Maximum	mg/L	0.0	0.76
August 4, 2005	Total Coliform Daily Maximum	MPN/100 mL	23	41
September 4, 2005	Total Coliform Daily Maximum	MPN/100 mL	23	48
September 13, 2005	Total Coliform Daily Maximum	MPN/100 mL	23	540
December 31, 2005	Total Coliform Daily Maximum	MPN/100 mL	23	104
January 1, 2006	Total Coliform 7-sample Median	MPN/100 mL	2.2	10
January 3, 2006	Turbidity Daily Average	NTU	10	11
January 3, 2006	Total Coliform Daily Maximum	MPN/100 mL	23	26
January 4, 2006	Total Coliform Daily Maximum	MPN/100 mL	2.2	10
January 5, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	10
January 6, 2006	Total Coliform Daily Maximum	MPN/100 mL	23	71
January 6, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	16
January 7, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	10
January 8, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	10
January 9, 2006	Total Coliform Daily Maximum	MPN/100 mL	23	186
January 9, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	10
January 10, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	5
January 11, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	5
January 11, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	9
January 12, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	9
January 13, 2006	Total Coliform Daily Maximum	MPN/100 mL	23	26
January 13, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	9
January 14, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	9
January 15, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	9
January 16, 2006	Total Coliform 7-Sample Median	MPN/100 mL	2.2	4
August 28, 2007	Total Coliform Daily Maximum	MPN/100 mL	23	33

The Regional Water Board issued an Expedited Mandatory Minimum Penalties (MMPs) letter for violations incurred from May 14, 2003, to August 28, 2008, dated November 3, 2008. The Regional Water Board assessed \$99,000 for a total of 33 violations subject to MMPs. The Discharger accepted the offer to participate in the expedited payment program on December 1, 2008.

2. **Compliance with Previous Permit Provisions.** A list of special activities required by the previous Order and the status of those requirements are shown in Table F-6, below.

**Table F-6. Compliance with Previous Order Provisions**

Provision Number	Requirement	Status of Completion
E.2	Cyanide Compliance Schedule and Cyanide Site Specific Objective Study	Status reports submitted annually through Bay Area Clean Water Agencies
E.3	Dichlorobromomethane Source Reduction Compliance Schedule and Attainability Analysis	Final report submitted April 12, 2007
E.4	Bis(2-ethylhexyl)phthalate Laboratory Analysis Study	Final report submitted April 12, 2007
E.5	Site-Specific Translator Study	Final report submitted June 30, 2008
E.8	Optional Receiving Water Beneficial Use and Alternate Bacteriological Limits Study	Report submitted February 14, 2007
E.9	Dry Weather Flow Capacity Analysis	<p>Submittal dated October 24, 2005 included:</p> <ul style="list-style-type: none"> <li>• Antidegradation Analysis for Proposed Wastewater Treatment Plant Discharge Modification</li> <li>• Fairfield-Suisun Sewer District Sewer System and Treatment Plant Master Plan</li> <li>• Draft Environmental Impact Report (EIR)</li> </ul> <p>Submittal dated July 18, 2008 included:</p> <ul style="list-style-type: none"> <li>• Final EIR</li> </ul>

#### **E. Planned Changes**

The Discharger plans to expand its treatment plant capacity to 23.7 MGD as an average dry weather flow, with a peak wet weather capacity of 52.3 MGD. Plant modifications are expected to be complete and operational by September 2009. This Order will allow increased treatment capacity in accordance with the requirements of section VI.C.2.e of this Order.

The treatment plant expansion includes the addition of one grit removal basin; one circular primary clarifier; post-roughing filter flow split structure; one intermediate clarifier; two activated sludge aeration basins; two circular secondary clarifiers; and a new outfall line to Ledge wood Creek. The outfall line was completed in August 2008. Wet weather flow equalization basins will continue to be used during and after the Plant expansion, and flows from the equalization basins will be returned to the Plant for full treatment after storm flows recede.

The Regional Water Board adopted a permit amendment, Order No. R2-2006-0045, on July 12, 2006, that amended Order No. R2-2003-0072 to allow an increase in dry weather discharge from 15.5 MGD to 23.7 MGD and to allow discharge to Ledge wood Creek through a separate outfall. During the permit amendment process, the Discharger completed an Engineering Analysis and an Environmental Impact Report for the construction of the additional facilities and the new outfall to Ledge wood Creek. The Discharger also completed a master plan for its collection system and has an ongoing preventive maintenance and capital improvement program for the collection system components to ensure adequate reliability and capacity.

To support the increase in average dry weather effluent flows to 23.7 MGD and the new discharge to Ledge wood Creek, the Discharger prepared an antidegradation analysis. Finding 13 of the permit amendment addressed antidegradation, which stated:

*To support the increase in permitted capacity to 23.7 MGD average dry weather flow, the Discharger prepared an antidegradation analysis in accordance with guidance contained in State Water Resources Control Board Administrative Procedures Update No. 90-04. The analysis indicated that the increase in permitted dry weather discharge to 23.7 MGD is necessary to accommodate planned growth within the Discharger's service area and is otherwise consistent with federal and state antidegradation policies. The increased discharge will have no measurable effect on the water quality of Suisun Slough, Grizzly Bay, Suisun Bay, or other segments of greater San Francisco Bay.*

Upon approval of the documentation required by Provision VI.C.2.g of the Order, the permitted dry weather discharge rate will increase to 23.7 MGD.

The Discharger is also designing a UV disinfection system which it expects to be operational by 2011.

### **III. APPLICABLE PLANS, POLICIES, AND REGULATIONS**

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

#### **A. Legal Authorities**

This Order is issued pursuant to the Clean Water Act (CWA) section 402 and implementing regulations adopted by USEPA and California Water Code (CWC) Chapter 5.5, Division 7 (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from the Plant to surface waters. This Order also serves as WDRs pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with section 13260).

#### **B. California Environmental Quality Act (CEQA)**

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.

#### **C. State and federal Regulations, Policies, and Plans**

- 1. Water Quality Control Plans.** The *Water Quality Control Plan for the San Francisco Bay Basin* (the Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was adopted by the Regional Water Board and approved by the State Water Resources Control Board, USEPA, and the Office of Administrative Law. Requirements of this Order implement the Basin Plan.

The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributaries. The Basin Plan does not specifically identify beneficial uses for Boynton Slough, but does identify present and potential uses for Suisun Slough, to which Boynton Slough is tributary. The beneficial uses of Ledge Creek are specifically identified by the Basin Plan. The Basin Plan specifically identifies the beneficial uses of Suisun Slough, to

which Boynton Slough is tributary. The Basin Plan also specifically identifies the beneficial uses of Suisun Marsh, to which the duck ponds are tributary.

The Discharger has performed plant community studies in Boynton Slough and Ledgewood Creek that show brackish marsh plants are present throughout the study area, indicating a tidal influence on each of these receiving waters. The Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the tidal influence on these receiving waters, total dissolved solids levels are expected to exceed 3,000 milligrams per liter (mg/L) and thereby meet an exception to State Water Board Resolution No. 88-63. The MUN designation does not apply to the receiving waters for this discharge. Beneficial uses applicable to Boynton Slough, Ledgewood Creek, and the duck ponds are summarized in Table F-7.

**Table F-7. Beneficial Uses of Boynton Slough, Ledgewood Creek, and Duck Ponds**

Discharge Point	Receiving Water Name	Beneficial Uses
001	Boynton Slough (Tributary to Suisun Slough)	Fish Spawning (SPWN) Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
002 and 003	Duck Ponds 1 and 2 (Both tributary to Suisun Marsh)	Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Fish Spawning (SPWN) Wildlife Habitat (WILD)
005	Ledgewood Creek	Freshwater Replenishment (FRSH) Cold Freshwater Habitat (COLD) Fish Migration (MIGR) Fish Spawning (SPWN) Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-contact Water Recreation (REC2)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. About 40 criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority toxic pollutants, which are applicable to the receiving waters for this Discharger.

3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria USEPA promulgated for California through the NTR and to the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria USEPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes [40 CFR 131.21, 65 Fed. Reg. 24641 (April 27, 2000)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
5. **Antidegradation Policy.** 40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

Resolution No. 68-16 requires:

*Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such high quality will be maintained until it has been demonstrated to the State that any change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than prescribed in the policies; and*

*Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or a nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained.*

Final effluent limitations limits in this Order comply with applicable State and federal antidegradation requirements and meet the requirements of the SIP. The increase in the rate of discharge authorized by the Order is consistent with applicable State and federal antidegradation policies. Compliance with antidegradation policies is discussed in section IV.D.6 of this Fact Sheet.

- 6. Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and NPDES regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

#### **D. Impaired Water Bodies on CWA 303(d) List**

In November 2006, USEPA approved a revised list of impaired water bodies (the 303(d) List), prepared pursuant to provisions of CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Suisun Marsh Wetlands appears on the 303(d) List for metals, nutrients, low dissolved oxygen, and salinity. The potential sources indicated for these 303(d)-listed pollutants are agriculture, urban runoff/storm sewers, and flow regulation/modification. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be consistent with total maximum daily loads and associated waste load allocations.

The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) List within the next ten years. TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and are intended to result in achieving the water quality standards for the impaired waterbodies. USEPA adopted a mercury TMDL for San Francisco Bay on February 12, 2008. The discharge of mercury from the Plant is regulated by Regional Water Board Order No. R2-2007-0077, which implements the adopted mercury TMDL and contains monitoring and reporting requirements.

### **IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS**

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the NPDES regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where Reasonable Potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs may be established (1) using USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) using an indicator parameter for the pollutant of concern; or (3) using a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

Several specific factors affecting the development of limitations and requirements in this Order are discussed as follows.

#### **A. Discharge Prohibitions**

##### **1. Discharge Prohibition III.A (No discharge other than that described in this Order):**

This prohibition is the same as in the previous permit and is based on CWC section 13260,

which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge, and subsequently in this Order, are prohibited.

2. **Discharge Prohibition III.B (No bypass or overflow of untreated or partially treated wastewaters):** This prohibition is retained from the previous permit and based on 40 CFR 122.41(m) (see federal Standard Provisions, Attachment D, section G).
3. **Discharge Prohibition III.C (Average dry weather flow not to exceed dry weather design capacity):** This prohibition is based on the design treatment capacity of the Plant. Exceedance of the plant's average dry weather flow design capacity of 17.5 MGD may result in lowering the reliability of achieving compliance with water quality requirements. This prohibition allows for an increase in the permitted average dry weather effluent flow to 23.7 MGD, upon submittal of proper documentation to the Regional Water Board in accordance with section VI.C.2.h. of the Order, and following approval of that documentation by the Executive Officer.
4. **Discharge Prohibition III. D (No sanitary sewer overflows to waters of the United States):** Discharge Prohibition No. 15 from Basin Plan Table 4-1 and the CWA prohibit the discharge of wastewater to surface waters except as authorized under an NPDES permit. Publicly-owned treatment works (POTWs) must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards [33 U.S.C. § 1311 (b)(1)(B and C)]. Therefore, a sanitary sewer overflow that results in the discharge of raw sewage, or sewage not meeting secondary treatment requirements, to surface waters is prohibited under the CWA and the Basin Plan.

## **B. Exceptions to Basin Plan Prohibitions**

Basin Plan Table 4-1 (Discharge Prohibitions) states it shall be prohibited to discharge:

1. *Any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimal initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof.*
3. *Any wastewater which has particular characteristics of concern to beneficial uses of Suisun Marsh during the dry weather period of the year.*

Basin Plan section 4.2 provides that exceptions to Basin Plan Prohibitions 1 and 3 may be considered where:

- *An inordinate burden would be placed on the discharger relative to beneficial uses protected and an equivalent level of environmental protection can be achieved by alternate means, such as an alternative discharge site; a higher level of treatment, and/or improved treatment reliability; or*
- *A discharge is approved as part of a reclamation project; or*

- *It can be demonstrated that net environmental benefits will be derived as a result of the discharge; or*
- *A discharge is approved as part of a groundwater clean-up project....*

The Basin Plan also states that the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water and the environmental consequences of such discharges will be considered in reviewing requests for exceptions to these prohibitions.

The discharge from the Plant is to a confined slough and inland creek, where a minimal dilution of 10:1 is not achieved. In addition, the locations of the discharges at Discharge Points 001, 002, 003, and 005 are within the Suisun Marsh.

In 1985, through NPDES permit reissuance Order No. 85-53, the Regional Water Board granted an exception to the prohibitions above, provided that the discharge affords a net environmental benefit and the Discharger complies with the requirements of its permit. The requirements of that permit included the following: maximize reclaimed water use for irrigation, prepare emergency wastewater storage, complete technical reports on maximizing reclaimed water use and discharge impacts on beneficial uses, and implement report recommendations.

In 1990, through NPDES permit reissuance of Order No. 90-101, the Regional Water Board found that the Discharger had achieved compliance with the requirements of Order No. 85-53, as described below:

- (1) Effluent discharged for reclamation through the Solano Irrigation District distribution system increased from 22% of the Plant's annual average effluent flow in 1985, to 40% in 1989.
- (2) In 1987, the Discharger completed construction of flow equalization and storage facilities that included the required renovation of existing basins for emergency storage, as well as addition of a flow equalization clarifier and use of two existing on-site lagoons for additional storage capacity. These facilities provide storage capacity of 12.6 MG and can be used for storage of peak wet weather flows or emergency storage in the event of a Plant upset.
- (3) In 1987, the Discharger completed the required technical report about the effects of the discharge on water quality and protection of beneficial uses (*Technical Report on Water Quality, Fairfield-Suisun Sewer District Subregional Wastewater Treatment Plant*, dated September 1987). The report evaluated existing water quality data to determine the discharge's impacts on Boynton Slough and the degree of environmental benefit, if any, from the effluent discharge. The report demonstrated that the discharge had some measurable local effects on Boynton Slough, but that these effects did not significantly impair any beneficial uses. Beneficial uses that require the input of fresh water were found to be more fully achieved as a result of the effluent discharge. The report concluded that, overall, on a year-round basis, the discharge afforded a net environmental benefit to Boynton Slough and the Suisun Marsh.

In 1992, construction was completed on additional facilities to provide increased storage capacity for peak wet weather flows and to provide improved flexibility and redundancy in the treatment process. These facilities, identified by the Discharger as the Stage IA project, included



a 55 MG capacity earthen equalization basin, an equalization flow clarifier with comminution and prechlorination equipment, and a third oxidation tower. The project increased flow equalization storage capacity from 12.6 MG to 55 MG and provided containment and treatment of all wastewater flows up to a 20 year storm event. This approach to wet weather flow management was in accord with the Basin Plan's wet weather overflow control strategy. The third oxidation tower provided increased redundancy in the treatment process and allowed for servicing of any one tower, without reducing treatment performance or reliability.

The Regional Water Board found that the water reuse program implemented by the Discharger complied with the exception provision of the Basin Plan. The Regional Water Board thereby granted an exception to the discharge prohibition to discharge advanced secondary treated effluent to Boynton Slough and to the managed duck ponds of Suisun Marsh, provided the Discharger would continue to:

- (1) Provide high quality treated effluent;
- (2) Operate all treatment facilities to ensure high reliability and redundancy;
- (3) Implement a source control program for any regulated chemical constituents measured at levels in violation of permit effluent limitations;
- (4) Implement measures to maintain, repair, and upgrade the existing wastewater facilities so as to ensure continued operation and treatment capability in conformance with permit requirements;
- (5) Progress toward construction of expanded or upgraded treatment facilities (See Section II.E. Planned Changes). These facilities were to be designed to ensure adequate capacity for community wastewater needs, and an adequate and reliable treatment process developed with sufficient flexibility and redundancy to provide for compliance with permit requirements as necessary to protect beneficial uses of Boynton Slough, Suisun Marsh, and Suisun Slough, in the vicinity of the discharge;
- (6) Promote and encourage beneficial reuse of treated wastewater, e.g., provide treated effluent to the managed duck ponds of Suisun Marsh; and
- (7) Work to use the maximum feasible amount of reclaimed effluent for irrigation and minimize discharges to Boynton Slough during dry weather.

Relying on similar bases, the Regional Water Board continued to grant the exceptions to the Basin Plan discharge prohibitions through Order Nos. 98-077 and R2-2003-0072.

The Regional Water Board finds that the discharges to Boynton Slough and the managed duck ponds continues to provide a net environmental benefit, and the discharge to Ledge Creek will provide a net environmental benefit. Therefore, pursuant to Basin Plan Section 4.2, these discharges qualify for an exemption from the prohibition against discharges receiving less than 10:1 dilution provided that the Discharger continues to do the following:

- (1) provide treated effluent to the managed duck ponds,
- (2) reclaim and reuse the maximum feasible amount of treated wastewater for irrigation and minimize discharges to Boynton Slough and Ledge Creek during dry weather,

- (3) achieve the advanced level of treatment required by this Order, reflecting a level of protection equivalent to strict adherence to the discharge prohibitions,
- (4) operate all treatment facilities to ensure high reliability and redundancy,
- (5) implement a source control program for any regulated chemical constituents measured at levels in violation of permit effluent limitations, and
- (6) implement measures to maintain, repair, and upgrade the existing wastewater facilities so as to ensure continued operation and treatment capability in conformance with permit requirements.

If these assumptions prove incorrect or not met, the Regional Water Board may reconsider granting this exception.

### C. Technology-Based Effluent Limitations

#### 1. Scope and Authority

CWA section 301(b)(1)(B) requires USEPA to develop secondary treatment standards (the level of effluent quality attainable through application of secondary or equivalent treatment) for POTWs. USEPA promulgated such technology-based effluent guidelines for POTWs at 40 CFR 133. These secondary treatment regulations include the following minimum requirements for POTWs, which are applicable to discharges from the Plant.

**Table F-8. Secondary Treatment Requirements**

	30-Day Average	7-Day Average
BOD <sup>(1)</sup>	30 mg/L	45 mg/L
TSS <sup>(1)</sup>	30 mg/L	45 mg/L
Ph	6.0 – 9.0	

**Footnotes to Table F-8:**

- (1) In addition, the 30-day average percent removal shall not be less than 85 percent.

The Plant provides advanced secondary treatment and has consistently met limitations on conventional pollutants that are more stringent than required by the federal secondary treatment standards described above. These more stringent limits are necessary to ensure that the plant continues to provide a high-quality effluent suitable for unrestricted reuse, and that provides a net environmental benefit to the receiving water. These are the bases for the exception to the Basin Plan's prohibition against discharges receiving less than ten to one dilution granted to the Discharger.

The Discharger has complied with the BOD effluent limitations, and has not caused or contributed to a violation of the receiving water limits on dissolved oxygen over the term of Order R2-2003-0072. A comparison of the Discharger's effluent data to receiving water data shows that its effluent usually contains more oxygen than the receiving water. Hence, we conclude that the BOD effluent limits are sufficient to prevent the discharge from causing or contributing to violations of dissolved oxygen water quality standards.

## 2. Applicable Effluent Limitations

This Order retains the effluent limitations for conventional and non-conventional pollutants, applicable to Discharge Points 001, 002, 003, and 005, from Order No. R2-2003-0072, except where noted below.

Effluent limitations for BOD and TSS, including the 85% removal requirement, are retained from Order No. R2-2003-0072. 40 CFR 122.45(d)(2) specifies that these discharge limitations for POTWs shall be stated as average weekly limitations and average monthly limitations, unless impracticable.

The limitation established for Oil and Grease are levels attainable by secondary treatment and are required by Basin Plan Table 4-2 for all discharges to inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region.

The pH limitation is retained from Order No. R2-2003-0072 and is required by Basin Plan Table 4-2 for shallow water discharges.

The effluent limitation for turbidity is retained from the previous permit.

This Order retains the instantaneous maximum limitation for chlorine of 0.0 mg/L based on Basin Plan Table 4-2.

The effluent limitation for enterococcus bacteria is new. It replaces the total coliform bacteria limitations of the previous Order. This 30-day geometric mean enterococcus effluent limitation is based on the freshwater steady state limitation for contact recreation contained in Basin Plan Table 3-2 and is based on USEPA criteria at 40 CFR 131.41 for coastal recreational waters, including coastal estuaries, in California. These water quality criteria became effective on December 16, 2004 [69 Fed. Register 67218 (November 16, 2006)].

Although USEPA also established single sample maximum criteria for enterococci bacteria, this Order implements only the geometric mean criterion of 33 colonies per 100 milliliters as an effluent limitation. When these water quality criteria were promulgated, USEPA expected that the single sample maximum values would be used for making beach notification and beach closure decisions. "Other than in the beach notification and closure decision context, the geometric mean is the more relevant value for assuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation ..." [69 Fed Reg. 67224 (November 16, 2004)].

The technology-based effluent limitations for settleable matter are not retained from Order No. R2-2003-0072, because the Regional Water Board has determined that compliance with the secondary treatment regulations at 40 CFR 133 and with Basin Plan Table 4-2 requirements will ensure removal of settleable solids to acceptably low levels below 0.1 mL/L-hr (30 day average) and 0.2 mL/L-hr (daily maximum).